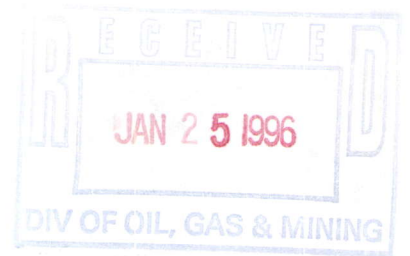


BRUSH WELLMAN, INC.
BERYLLIUM/MINING DIVISION

Topaz Mine

M/023/003



1995 ANNUAL REPORT
of Mining Operations

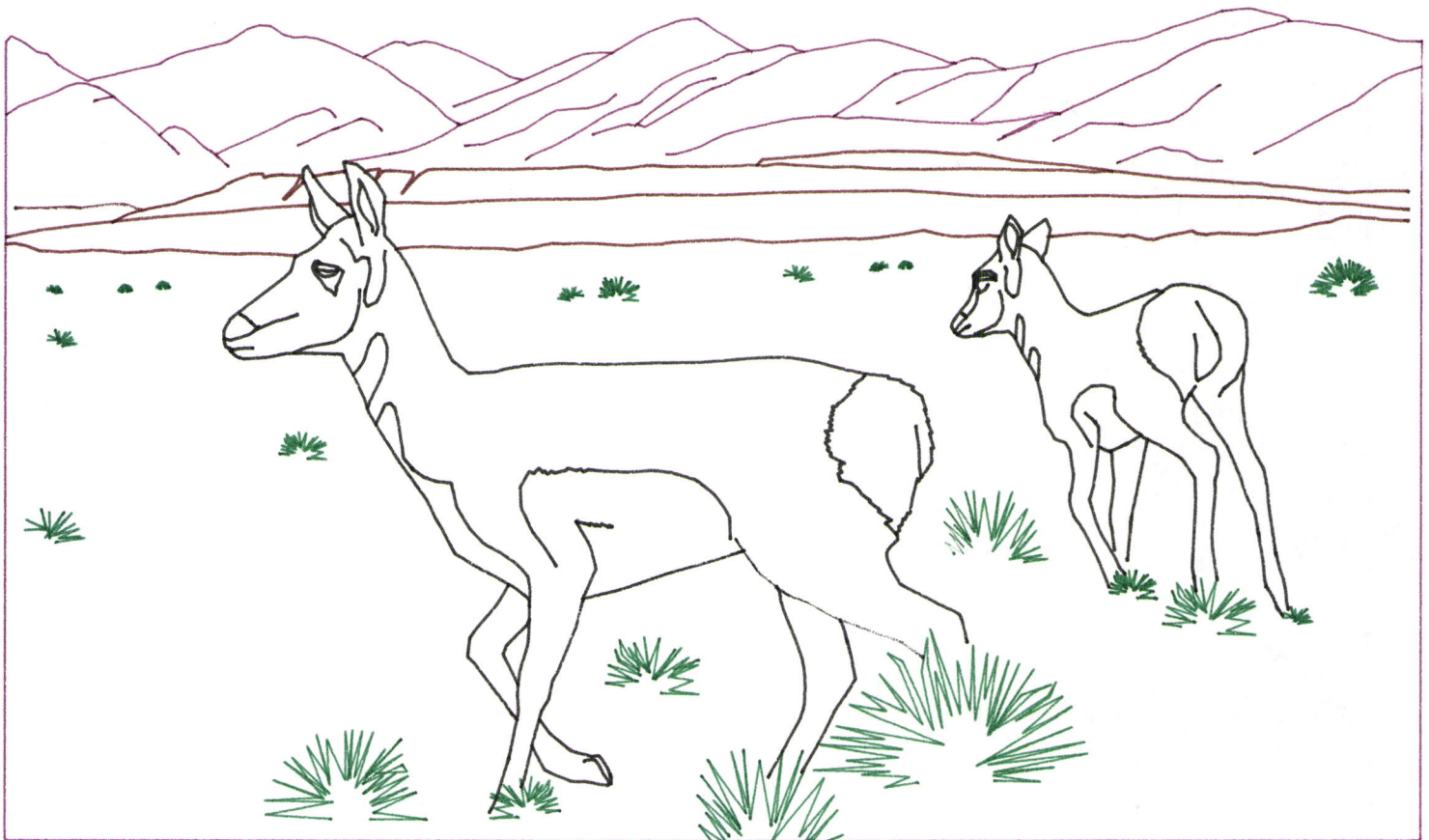


TABLE OF CONTENTS

ANNUAL REPORT OF MINING OPERATIONS (FORM MR-AR Revised 12/93)

Supplement to the report

1. Legal description of lands affected.
2. Letter of April 5, 1995 to D. Wayne Hedberg of D.O.G.M. Request for release from work on Sigma Emma and Taurus reclamation treatments from Greg Hawkins.
3. Letter of response August 23, 1995 from D.O.G.M. regarding reclamation release request, Sigma Emma and Taurus reclamation treatment, Topaz Mine, M/023/003, Juab County, Utah.
4. Memorandums of October 17, 1995 and January 3, 1996 from Clyde Yates of work completed for 1995. This work was done in cooperation from request of the letter from D.O.G.M. (August 23, 1995 page 3, paragraph 2) of the **Sigma Emma Pit and Dump Area.**
 - a) Plat 1 displaying Taurus area released, and Sigma Emma Reclamation released and **not** released from D.O.G.M. letter of (August 23, 1995). Also work and photography locations.
 - b) Photographs #1 through #7
 - c) Descriptions of photographs
5. Table and graph depicting "Effective Moisture for Topaz Mt."

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
Telephone: (801) 538-5340
Fax: (801) 359-3940

ANNUAL REPORT OF MINING OPERATIONS

The informational requirements of this form are based on provisions of the Mined Land Reclamation Act, Title 40-8, Utah Code Annotated 1953, as amended, and the General Rules as promulgated under the Utah Minerals Regulatory Program. An operator conducting mining operations under a Notice of Intention must file an annual operations and progress report (FORM MR-AR) with the Division.

I. GENERAL INFORMATION

1. Report Time Period: From (mo./yr.) Jan. 1995 To (mo./yr.) Dec. 1995
2. DOGM File Number: M/023/003
3. Mine Name: Topaz Mining Property
4. Mineral(s) Mined: (or permitted to mine): Bertrandite (beryllium)
5. Legal Description (Location of Lands Affected):
See enclosed description...
_1/4, _1/4, Section __, Township __, Range _
_1/4, _1/4, Section __, Township __, Range _
_1/4, _1/4, Section __, Township __, Range _
6. Name of Operator or Company: Brush Wellman, Inc.
7. Permanent Address: P.O. Box 815
City, State, Zip: Delta, Utah, 84624
Phone: (801) 864-2701
8. Company Representative (or designated operator):
Name: Greg G. Hawkins
Title: Mine Manager
Business Address: P.O. Box 815
City, State, Zip: Delta, Utah 84624
Phone: (801) 864-2701 ext. 211
☐ Please check if any of the above information has changed since previous year.

II. MINING AND RECLAMATION

1. Was the mine active during the past year? Yes ☒ No ☐
2. If active, how much ore or mineral was mined? 113,663 Wet tons (delivered)

3. How much **additional acreage** was affected during past year? No new acreage disturbed.
4. Briefly describe any new or additional surface disturbances that occurred during the past year. This description should include the type of work performed, and volume of material moved.

-NA- All areas were previously disturbed

5. How much acreage was **reclaimed** during past year? Approx. .5 acre reworked
6. Briefly describe the reclamation work performed during the past year. This description should include methods employed, and an evaluation of the results.

Reworking the Sigma Emma road way east of pit. The waterbars were removed
Ditches were dug to divert water to a holding pond and the area under scrutiny was
cross ripped to prevent erosion. Applied topsoil, manure, straw, fertilizer, gypsum,
and seed mix. Requested by D.O.G.M. and BLM representatives during the 1995
inspection. See letter dated August 23, 1995 and work memo from Clyde Yates.

7. What is the **total disturbed acreage** at years end? (252.24 Acres) Less than in 1994
8. Briefly summarize mining and/or reclamation plans for the upcoming year.

Work is planned to continue testing and monitoring of reclamation areas as in 1995.
Holistic reclamation techniques will be tested and considered for future application.
Inspection of previously all reclaimed areas pending will be requested for release.

NOTE: Section III., "Additional Information" applies only to **large mining operations.**

III. ADDITIONAL INFORMATION

SEE ATTACHMENTS

1. An updated surface facilities map should be attached if there have been significant changes since the previous map was submitted.
2. Any monitoring results or other reports that are required under the terms of the approved notice of intention should be attached.

IV. SIGNATURE REQUIREMENT

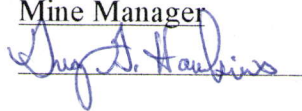
I hereby certify that the foregoing is true and correct.

Name (Typed or Print): Greg G. Hawkins

Title of Operator: Mine Manager

Signature of Operator:

Date: 1/23/96



TOPAZ MINING PROPERTY

LEGAL DESCRIPTION OF LANDS AFFECTED

Township 13 South, Range 12 West, SLM

Section 4

The SW $\frac{1}{4}$ of the SE $\frac{1}{4}$, and the SE $\frac{1}{4}$ and the SW $\frac{1}{4}$ of the SW $\frac{1}{4}$.

Section 5

Lot 1 and Lot 2 and the SE $\frac{1}{4}$ and the SW $\frac{1}{4}$ of the NE $\frac{1}{4}$, and All $\frac{1}{4}$'s of the SE $\frac{1}{4}$, and the NE $\frac{1}{4}$ and the SE $\frac{1}{4}$ and the NW $\frac{1}{4}$ of the SW $\frac{1}{4}$, and Lot 3 and the SE $\frac{1}{4}$ of the NW $\frac{1}{4}$.

Section 6

Unaffected

Section 7

All $\frac{1}{4}$'s of the SE $\frac{1}{4}$, and the NE $\frac{1}{4}$ and the SE $\frac{1}{4}$ of the SW $\frac{1}{4}$.

Section 8

All of the NE $\frac{1}{4}$, and All $\frac{1}{4}$'s of the SE $\frac{1}{4}$, and the NE $\frac{1}{4}$ and the SE $\frac{1}{4}$ of the SW $\frac{1}{4}$, and the SE $\frac{1}{4}$ of the NW $\frac{1}{4}$.

Section 9

All $\frac{1}{4}$'s of $\frac{1}{4}$'s (entire section affected)

Section 10

The NW $\frac{1}{4}$ of the SW $\frac{1}{4}$, and the SW $\frac{1}{4}$ and the NW $\frac{1}{4}$ of the NW $\frac{1}{4}$.

Section 16 (State School Section Lease)

The NE $\frac{1}{4}$ and the NW $\frac{1}{4}$ of the NE $\frac{1}{4}$, and the NW $\frac{1}{4}$ of the NW $\frac{1}{4}$.

Section 17

The NE $\frac{1}{4}$ and the NW $\frac{1}{4}$ of the NE $\frac{1}{4}$.

Township 12 South, Range 12 West, SLM

Section 32 (State School Section Lease)

The SW $\frac{1}{4}$ of the NE $\frac{1}{4}$, and the SE $\frac{1}{4}$ and the SW $\frac{1}{4}$ and the NW $\frac{1}{4}$ of the SE $\frac{1}{4}$, and the NE $\frac{1}{4}$ and the SE $\frac{1}{4}$ of the SW $\frac{1}{4}$.

BRUSHWELLMAN

ENGINEERED MATERIALS

April 5, 1995

D. Wayne Hedberg
Permit Supervisor
State of Utah Department of Natural Resources
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, UT 84180-1203

Re: Topaz Mine, M/023/003, Juab County Utah; Request for
Release From Work on Sigma Emma and Taurus Reclamation
Treatments.

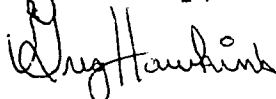
Dear Mr. Hedburg:

Please be advised that additional reclamation treatment in the areas referred to above is now completed. Please accept this request to conduct a reclamation site inspection.

The inspection should be this spring to better view the spring growth. As you recall from the meeting in your office the 15th of May, 1995 was suggested as the date of this inspection.

I look forward to your reply concerning this inspection. Please feel free to contact me at (801-864-2701) ext. 211.

Sincerely,



Greg Hawkins
Mine Manager

cc: Don McMillan
Rody Cox, BLM
File



State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor

Ted Stewart
Executive Director

James W. Carter
Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340
801-359-3940 (Fax)
801-538-5319 (TDD)

August 23, 1995

Greg Hawkins
Mine Manager
Brush Wellman, Incorporated
P.O. Box 815
Delta, Utah 84624

Re: Reclamation Release Request, Sigma Emma and Taurus Reclamation Treatments,
Topaz Mine, M/023/003, Juab County, Utah

Dear Mr. Hawkins:

On April 10, 1995, we received your request for a release from the supplemental reclamation work performed on the Sigma Emma and Taurus reclamation treatment areas. On May 16, 1995, we visited the site and viewed the areas where the latest reclamation work had occurred. This letter will discuss how we viewed the success of those efforts and what releases will be granted and what further work will be required.

Outcome of Site Visit

Taurus Pit and Dump Area

We examined the roads, east and west side of the pit (reseeded in the winter of 1994) adjacent to the dump area, where the operator had applied topsoil, gypsum, straw and seed mix. Revegetation success was still "spotty". Some areas are doing fairly well, while other areas are not. The application of straw and horse manure was uneven and there were areas, where it was visually estimated to be 8-10 inches thick. In recognition of the harsh onsite environmental conditions, the low fertility of the growth medium, and the good faith revegetation efforts made by the operator, it is our opinion that these road areas can be released. We believe that additional soil amendments and reseeding efforts will not appreciably increase the revegetative success in the near term. Numerous islands/clumps of healthy vegetation have been established and with the passage of time, these areas will expand and ultimately blend in with the vegetation density of the adjacent undisturbed area.

Sigma Emma Pit and Dump Area

Similar roads in the Sigma Emma Pit and Dump area were treated with topsoil, horse manure, straw and gypsum at 150 lb/acre and then reseeded. Straw-bales were used as waterbars and placed on the Sigma Emma road on the east side of the pit. Poor grading practices which lacked sufficient surface roughness and trenches constructed parallel to the slope, have caused the outlets of the waterbars to headcut and erode severely. Because of the initial regrading problems, even the supplemental work expended in this area has shown marginal improvements.

Because of the continued severe erosion, particularly at the waterbar locations, the Sigma Emma pit road on the east side of the pit is **not released**. It is our opinion that the continued erosion problems stem from the original method of grading parallel to the slope, the overall lack of sufficient surface roughness, and a failure to prevent adjacent disturbed area drainage from entering the road. Future reclamation efforts in this area should be carefully considered prior to implementation (i.e., incorporate surface roughness and improved handling of surface drainage). In our experience, it is generally not a best management practice to use straw bales for waterbars. Normally, they are only a temporary fix, are considered non-permanent and are often difficult to install properly and maintain. A suggestion for future efforts on this road may be to remove the straw bale waterbars altogether. An attempt should be made to create a very rough, undulating surface with a track-hoe (or other suitable regrading equipment), that will prevent any significant concentration of drainage on or down the road profile. This should help stabilize the road over the long term, as well as promote increased revegetative success.

The Sigma Emma dump (tuff surface) has had two reseeding efforts. Both seeding efforts proved unsuccessful in achieving the 70% revegetation standard. Because the operator performed the dump reclamation in accordance with the approved plan, a variance from future reclamation efforts was granted by the Division.

Final Determination

Taurus Pit and Dump Area

1. The roads, east and west side of the pit (reseeded in the winter of 1994) adjacent to the dump area, where the operator had applied topsoil, gypsum, straw and seed mix are hereby released.

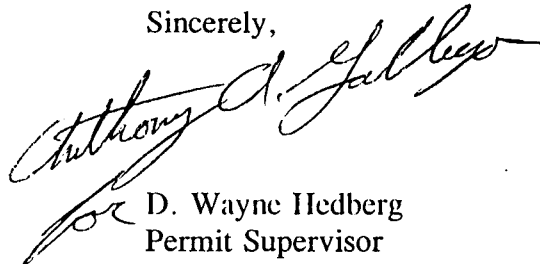
Page 3
Greg Hawkins
M/023/003
August 23, 1995

Sigma Emma Pit and Dump Area

1. The Sigma Emma pit road on the west side of the pit, that received supplemental treatment with topsoil, horse manure, straw and gypsum at 150 lb/acre, then was reseeded ~~is also released.~~
2. The Sigma Emma pit road on the east side of the pit is **not released** based on the evidence of continued severe erosion, especially at waterbar locations. Supplemental reclamation efforts similar to those previously outlined in this letter will be required. Additional broadcast fertilizing and seeding will be necessary for all impacted areas following any regrading work.

We appreciate your continued cooperation and willingness to work with the Division in working out appropriate solutions to resolve these reclamation challenges. Please feel free to contact me, Tom Munson, or Lynn Kunzler of the Minerals staff should you have questions or concerns in this regard.

Sincerely,



D. Wayne Hedberg
Permit Supervisor
Minerals Regulatory Program

jb
cc: Rody Cox, Warm Springs RA, BLM
Minerals staff (route)
M023003.let

October 17, 1995

TO: Reclamation File

FROM: Clyde Yates

SUBJECT: Mine Plan Reclamation Work Done, Topaz Mine, M/023/003, Juab County Utah

CC: Greg Hawkins John Wagner
Don Mcmillan Dan Perry

The 1995 Reclamation work was done on Sigma Emma road way east of the pit. This work had been done in 1994 but was not released by D.O.G.M. Their letter of August 23, 1995 stated that the

“ road on the east side of the pit is not released based on the evidence of continued severe erosion, especially at waterbar locations. Supplemental reclamation efforts would be required . Additional broadcast fertilizing and seeding will be necessary for all impacted areas following any regrading work”.

The reclamation work done proceeds as follows.

1. Waterbars were removed and stored for further use.
2. Washed out areas around waterbars were filled in with riprap to prevent continued erosion.
3. Supplemental treatment of 250 tons of topsoil was placed on road-way and 30 tons of cow manure and 20 bails of straw from waterbars was placed over the topsoil.
4. Drainage was created to prevent erosion of road-way and to divert water to a bentonite lined holding pond south and east of road-way.
5. The road-way was ripped with the scarify ripper against the drainage to help prevent erosion and to mix the manure and straw with the topsoil.
6. 200lbs of gypsum and 100 lbs Phosphate fertilizer was broadcast over area.
7. Photos were taken of the area.
8. Standard seed mix for topsoiled areas from MRP page 44 table 4.6-1 will be applied.

This work was postponed until the seeding can be done in wet weather, later this month.

Exhibit: Photos of area

Memorandum

DATE: January 10, 1996

TO: Reclamation File

FROM: Clyde Yates

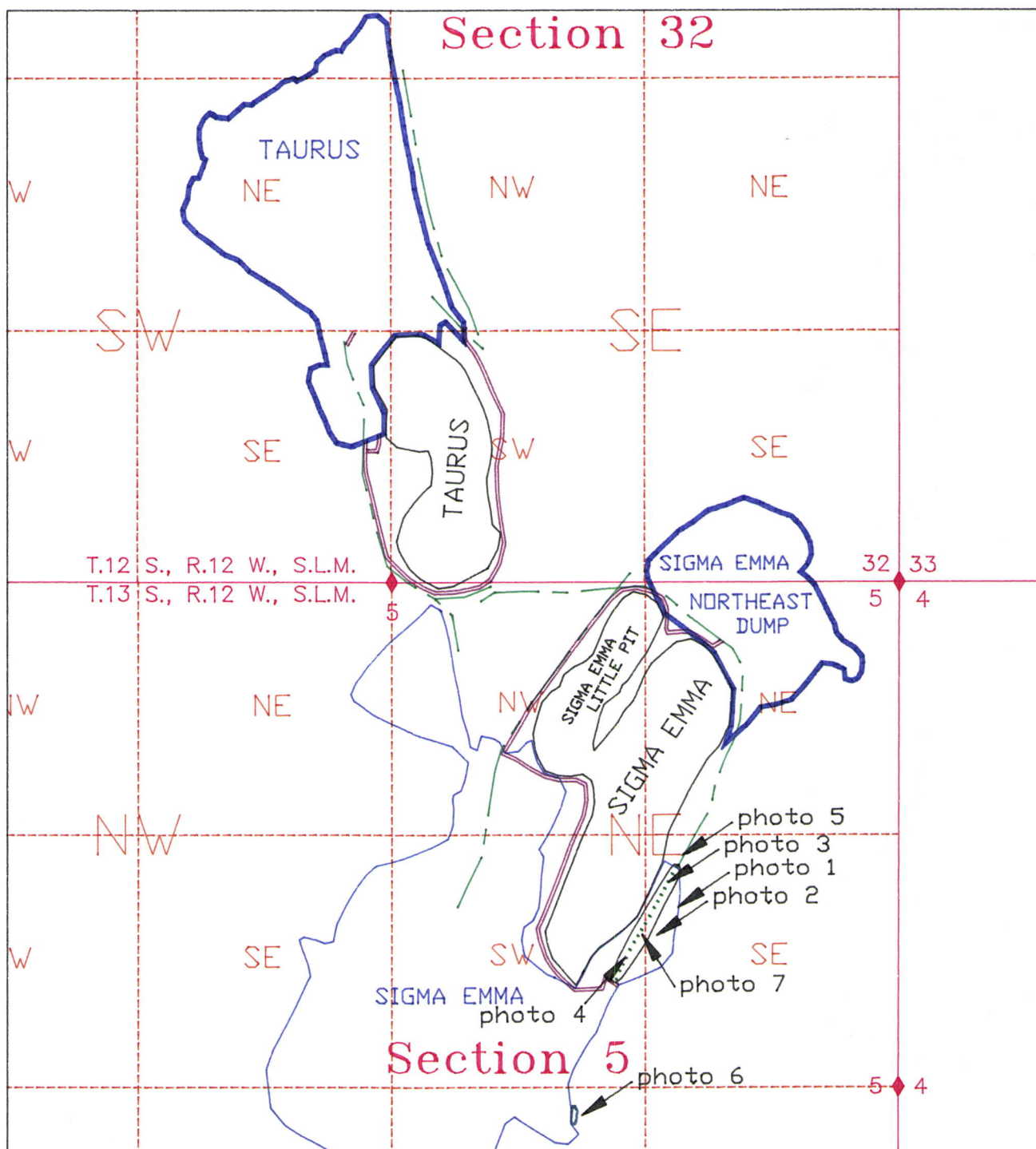
RE: Mine Plan Reclamation Work Done, Topaz
Mine, M/023/003, Juab County, Utah

CC: Greg Hawkins John Wagner
Don Mcmillan Dan Parry

Update From October 17, 1995 Report

The seeding of the Sigma Emma road way was completed on December 7, 1995. Approximately one half acre of land was reseeded. Standard seed mix for topsoiled areas from MRP page 44 table 4.6-1 was applied. Seed mix and poundage goes as follows.

<u>Scientific Name</u>	<u>Common Name</u>	<u>lbs. used</u>
<u>Agropyron cristatum</u>	Crested Wheatgrass	2.0
<u>Sitanion hystrix</u>	Squirreltail	2.0
<u>Oryzopsis hymenoides</u>	Indian ricegrass	4.0
<u>Sporobolus cryptandrus</u>	Sand dropseed	1.0
<u>Melilotus officinalis</u>	Yellow sweetclover	2.0
<u>Penstemon palmeri</u>	Palmer's penstemon	1.0
<u>Atriplex canescens</u>	Four-wing saltbush	2.0
<u>Ceratoides lanata</u>	Winterfat	1.0
<u>Chrysothamnus viscidiflorus</u>	Green rabbitbrush	2.0
	<u>Total</u>	17.0 lbs.



Descriptions of Photographs

The photographs were taken to show the extent of work as completed during the 1995 reclamation efforts. The following is intended to describe the photo location, orientation, area affected and work done.

- Photo 1** Picture of ditch diverging water to a holding pond from noneffected area and effected area to prevent erosion on east Sigma Emma road way, looking southwesterly.
- Photo 2** Picture of ditch diverging water to a holding pond in center of effected area to prevent erosion, looking southwesterly on east Sigma Emma road way.
- Photo 3** Picture of cross rip on east Sigma Emma road way. Ripped cross drainage for erosion prevention, looking northwesterly. This area is estimated at 0.5 acres. It was treated with topsoil, gypsum, straw, fertilizer and seed mix.
- Photo 4** Picture of the reclaimed road east of the Sigma Emma pit, looking northerly. This area is estimated at 0.5 acres. It was treated with topsoil, gypsum, straw, fertilizer and seed mix.
- Photo 5** Picture of the reclaimed road east of the Sigma Emma pit, looking southerly. Same as picture 4.
- Photo 6** Picture of the water diverging holding pond from the east Sigma Emma road way. This pond as been bentonite lined.
- Photo 7** Picture of reclaimed area east of Sigma Emma pit before severe erosion at waterbars improperly constructed. Reclamation work, perpendicular ripping was completed and water bars removed, looking southwesterly. This area is estimated at 0.5 acres.

1.



2.



3.



4.



5.



6.





Effective Moisture for Topaz Mt.

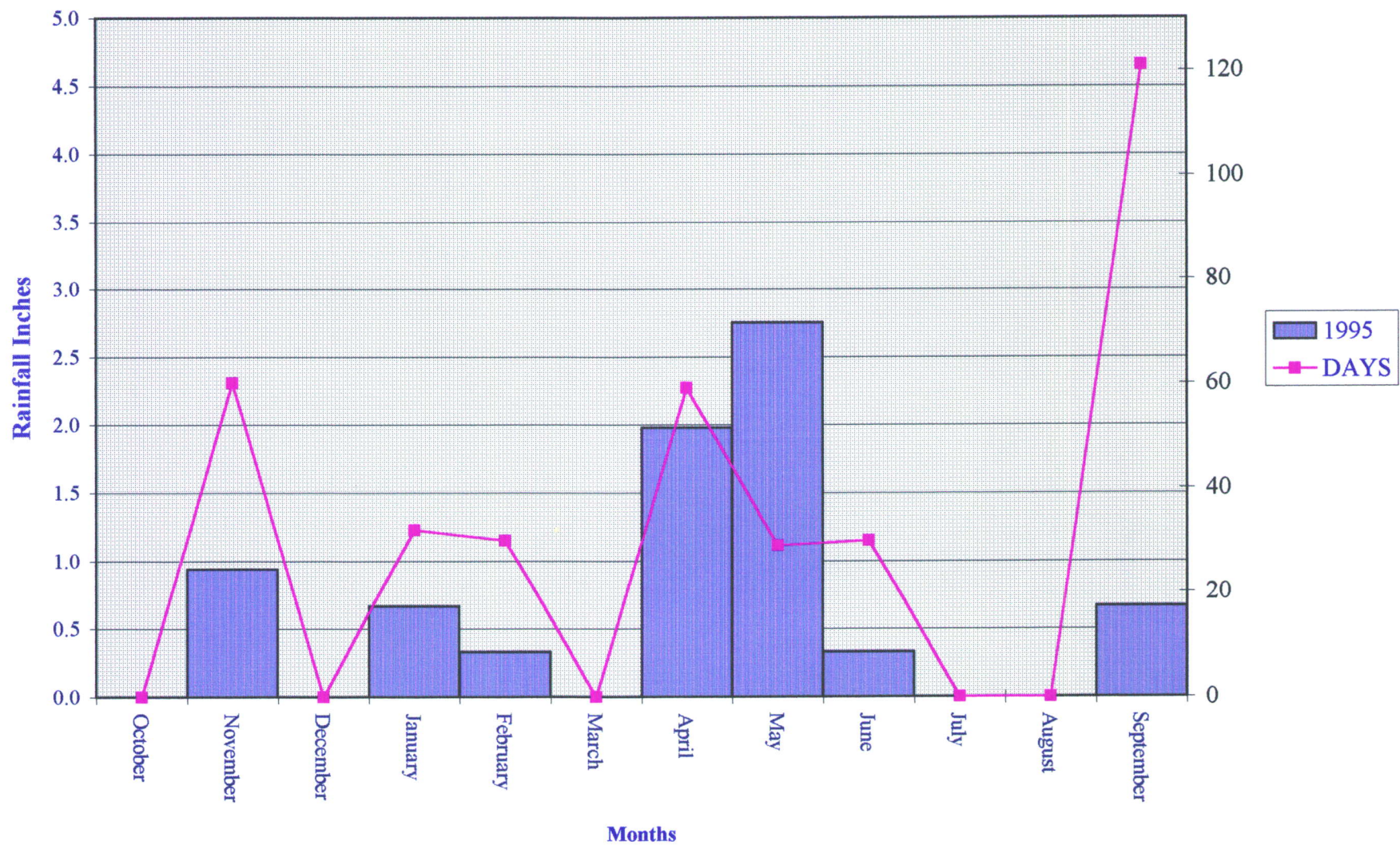
Measured Rainfall

Months	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
October			2.2			1.21	0.55				0.94	0.49	1		0.33	2.15	3.41	
November		2.53						1.21		0.71		0.38	1.43	0.6	1.21			0.94
December				0.55	2.53											1.16	0.66	
January		0.66	1.7						0.77			0.33		0.55				0.66
February		0.61		1.1	3.36	3.3			0.44	1.6	2.31		0.38		0.99		0.06	0.33
March			1.9					1.1		0.72	0.5	0.82	0.38	1.15	0.71	2.26	0.66	
April	1.5	1.76	1.98		0.55	1.65	4.46		2.86	0.22	0.6	0	1.43	0.96	0		0.94	1.98
May	0.66	0.22		2.75	0.55	1.1		0.99		1.38	1.1	0.99	1.37	0.71	0.49		1.16	2.75
June		0.39	2.26	1.32	1.72	1.32	1.93			0.28	0.39					2.37		0.33
July					1.38							0.77				0.55		
August						3.08	3.41				0.39	0.93	0.6					
September	0.28			2.2	4.24		0.5			1.7	0.55	0.22	0.94	2.75	1.4	0		0.66
Total	2.44	6.17	10.04	7.92	14.33	11.66	10.85	3.30	4.07	6.61	6.78	4.93	7.53	6.72	5.13	8.49	6.89	7.65
Yrly Avg.	0.81	1.03	2.01	1.58	2.05	1.94	2.17	1.10	1.36	0.94	0.85	0.55	0.94	1.12	0.73	1.42	1.15	1.09
Minimum	0.28	0.22	1.70	0.55	0.55	1.10	0.50	0.99	0.44	0.22	0.39	0.00	0.38	0.55	0.00	0.00	0.06	0.33
Maximum	1.50	2.53	2.26	2.75	4.24	3.30	4.46	1.21	2.86	1.70	2.31	0.99	1.43	2.75	1.40	2.37	3.41	2.75

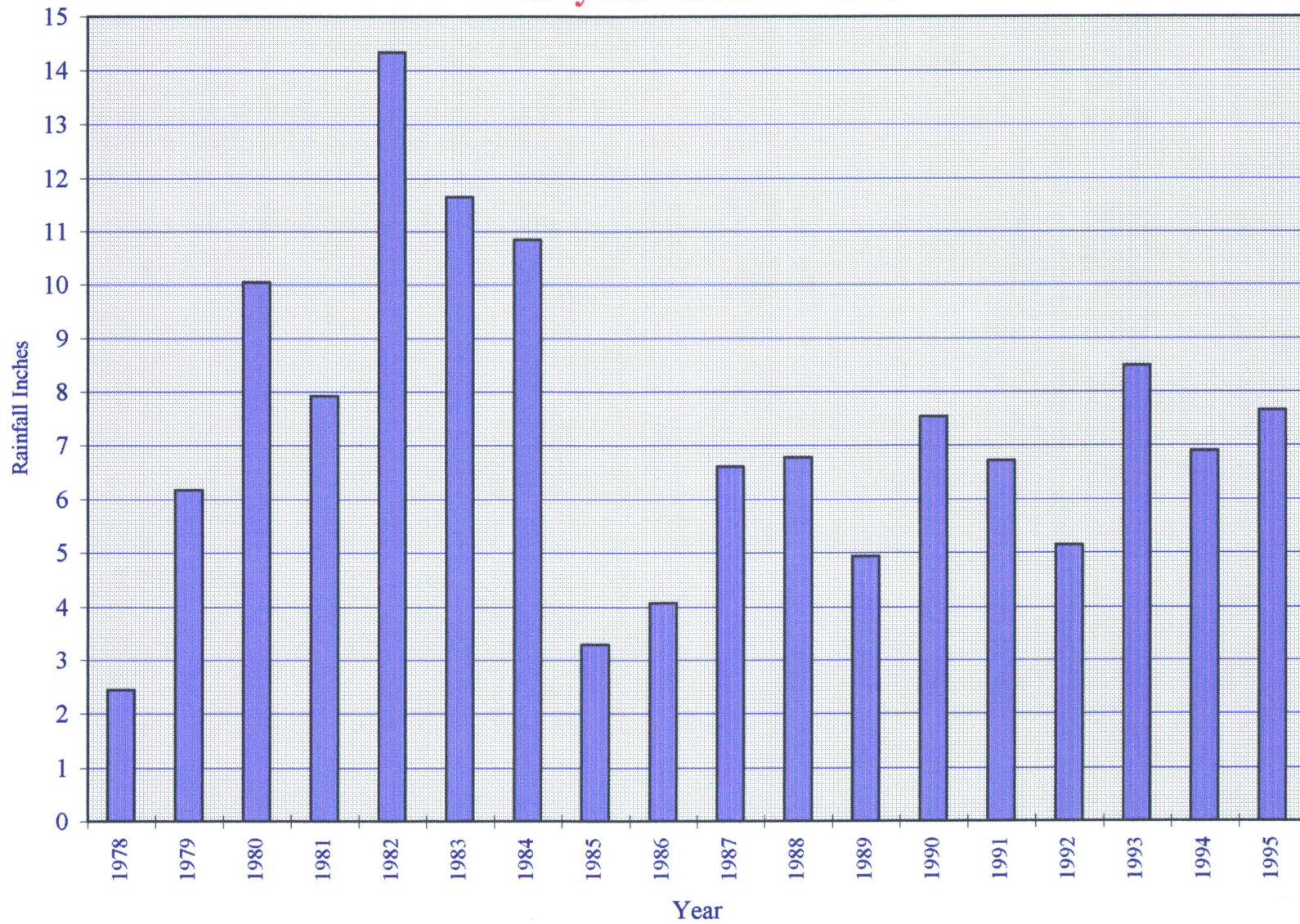
Note: All measurements are in inches. The Calendar rain year begins October and ends in September.

1995 rain can was recharged in October 19, 1994.

Effective Moisture Topaz Mt. 1995



Effective Moisture Topaz Mt.
Yearly Rainfall 1978 - 1995



Effective Moisture Topaz Mt.
Monthly Avg. 1978-1995

